

## Abstract

The present invention is a new multifunctional low-cost solution for performing measurements and positioning in construction sites and automatically extracting a three-dimensional virtual model, plans, elevations and sections drawings based on these measurements. The preferred embodiment of the present invention consists of a field beacon or a set of field beacons, spread around the measured area, communicating by omnidirectional signals with at least one central signal collector, which communicates with a computer. Dedicated computer software performs the spatial calculations and other applicable functions. The disclosed system is used for laying out axes and columns at the beginning stage of construction while ensuring the exact match of each mark to its planned position, and for quality and exactitude control of constructions or assembling. In addition the system may be used for locating and tracking objects in a predefined area and automatic directing of machinery to target points.